WHAT IS CLAIMED IS:

1. A connector for controlling the flow of fluid, the connector having an internal fluid passageway by which fluid may flow through the connector, the connector comprising:

a housing having a first port and a second port, the first port being adapted to receive a blunt cannula and the second port adapted for fluid communication with a fluid conduit; and

a movable element positioned within the housing, the movable element having a first position at which the movable element blocks fluid flow through the housing and a second position at which the movable element permits fluid flow through the housing, the movable element comprising:

a head defining a bore forming a part of the fluid passageway through the connector, the head being configured such that when the movable element is in the second position, the bore self-opens to permit fluid flow, the head being further configured such that when the moveable element is in the first position the bore moves to a closed configuration preventing fluid flow;

a compressible section defining an inner conduit forming a part of the fluid passageway through the connector, the inner conduit having a width moveable between a first width and a second width, the compressible section being configured so that when the moveable element is in the second position the compressible section self-expands so that the inner conduit has the second width, the inner conduit being further configured so that when the moveable element is in the first position the inner conduit moves to the first width, wherein the first width is smaller than the second width.

2. The connector of claim 1 wherein the first and second widths of the inner conduit of the compressible section are selected such that the fluid passageway has a first volume when the movable element is in the first position and

a second volume when the movable element is in the second position, the second volume being larger than the first volume.

3. The connector of claim 1 wherein the first and second widths of the inner conduit of the compressible section are selected such that the fluid passageway has a first volume when the movable element is in the first position and a second volume when the movable element is in the second position, the second volume being approximately the same as the first volume.

4. The connector of claim 1 wherein the inner conduit of the compressible section is configured such that fluid may continuously flow through the entire inner conduit when the movable element is located in the second position.

5. The connector of claim 1 further comprising a support tube having opposing ends, the support tube defining a lumen extending between the opposing ends, one end being in fluid communication with the second port and the lumen forming a part of the internal fluid passageway through the connector.

6. The connector of claim 5 wherein the support tube comprises a wall, the wall defining a slot providing a fluid path between the exterior of the tube and the lumen.

7. The connector of claim 6, wherein the support tube is configured in relation to the moveable element such that, when the movable element is in the second position, the lumen and slot of the support tube are positioned, at least in part, within the inner conduit of the compressible section such that fluid may flow through the inner conduit of the compressible section, through the slot, through the lumen of the support tube, and through the second port of the housing.

8. The connector of claim 7 wherein:

the inner conduit of the compressible section has opposing first and second ends, the first end being adjacent the bore of the head; and

the movable element defines an orifice located at the second end of the inner conduit, the orifice forming part of a flow path extending from the bore, through the inner conduit, and out of the inner conduit through the orifice.

9. The connector of claim 8 wherein:

the lumen and slot of the support tube extend, at least in part, to a location outside the inner conduit of the compressible section when the movable element is at the second position; and

said flow path further extends from the orifice, through the slot, and into the lumen at the location outside of the inner conduit.

10. The connector of claim 8 wherein:

the moveable element further comprises a spring section connected to the compressible section; and

said flow path further extends from the orifice, and into the spring section whereby the spring section provides a portion of the internal fluid passageway.

11. The connector of claim 10 wherein:

the spring section is extended when the moveable element is in the first position and when extended, the spring section has a first internal volume; and

the spring section is compressed when the moveable element is in the second position and when compressed, the spring section has a second internal volume, the second internal volume of the spring section being greater than the first internal volume of the spring section;

whereby the internal volume of the portion of the flow path provided by the spring section is greater when the spring section is compressed.

12. The connector of claim 1 wherein the housing includes a narrowed region adjacent the first port, the head of the movable element being located in the narrowed region when the movable element is in the first position, the narrowed region being dimensioned so as to cause the bore of the head to close.

13. The connector of claim 1 wherein the housing includes a constricted region, the compressible section being located in the constricted region when the movable element is in the first position, the constricted region being dimensioned so as to cause the width of inner conduit of the compressible section to move to the first width.

14. The connector of claim 13 wherein:

the compressible section is connected to the head; and

the moveable element further comprises a spring section connected to the compressible section, the spring section being adapted to urge the movable element to the first position at which the compressible section is placed within the constricted region.

15. The connector of claim 14 wherein the head, and the compressible section, and the spring section are molded as an integral moveable element.

16. The connector of claim 1 wherein the compressible section comprises a plurality of relatively flexible membrane elements and a plurality of relatively stiff wall elements, the membrane elements connecting together adjacent edges of the wall elements.

17. The connector of claim 16 wherein the membrane elements are adapted to fold radially inwardly when the inner conduit has the first width.

18. A connector for controlling the flow of fluid, the connector having an internal fluid passageway by which fluid may flow through the connector, the connector comprising:

a housing having a first port and a second port, the first port being adapted to receive a blunt cannula and the second port adapted for fluid communication with a fluid conduit; and

a movable element positioned within the housing, the movable element having a first position at which the movable element blocks fluid flow through the housing and a second position at which the movable element permits fluid flow through the housing, the movable element comprising:

a head defining a bore forming a part of the fluid passageway through the connector, the head being configured such that when the movable element is in the second position, the bore self-opens to permit fluid flow, the head being further configured such that when the moveable element is in the first position the bore moves to a closed configuration preventing fluid flow;

a compressible section defining an inner conduit forming a part of the fluid passageway through the connector, the inner conduit having a width moveable between a first width and a second width, the compressible section being configured so that when the moveable element is in the second position the compressible section self-expands so that the inner conduit has the second width, the inner conduit being further configured so that when the moveable element is in the first position the inner conduit moves to the first width, wherein the first width is smaller than the second width; and

wherein the inner conduit is configured such that fluid may continuously flow through the entire inner conduit when the movable element is in the second position.

19. The connector of claim 18 wherein the first and second widths of the inner conduit of the compressible section are selected such that the fluid

passageway has a first volume when the movable element is in the first position and a second volume when the movable element is in the second position, the second volume being larger than the first volume.

20. The connector of claim 18 wherein the first and second widths of the inner conduit of the compressible section are selected such that the fluid passageway has a first volume when the movable element is in the first position and a second volume when the movable element is in the second position, the second volume being approximately the same as the first volume.

21. The connector of claim 18 further comprising a support tube having opposing ends, the support tube defining a lumen extending between the opposing ends, one end being in fluid communication with the second port and the lumen forming a part of the internal fluid passageway through the connector.

22. The connector of claim 21 wherein the support tube comprises a wall, the wall defining a slot providing a fluid path between the exterior of the tube and the lumen.

23. The connector of claim 22 wherein the support tube is configured in relation to the moveable element such that, when the movable element is in the second position, the lumen and slot of the support tube are positioned, at least in part, within the inner conduit of the compressible section such that fluid may flow through the inner conduit of the compressible section, through the slot, through the lumen of the support tube, and through the second port of the housing.

24. The connector of claim 23 wherein:

the inner conduit of the compressible section has opposing first and second ends, the first end being adjacent the bore of the head; and

the movable element defines an orifice located at the second end of the inner conduit, the orifice forming part of a flow path extending from the bore, through the inner conduit, and out of the inner conduit through the orifice.

25. The connector of claim 24 wherein:

the lumen and slot of the support tube extend, at least in part, to a location outside the inner conduit of the compressible section when the movable element is at the second position; and

said flow path further extends from the orifice, through the slot, and into the lumen at the location outside of the inner conduit.

26. The connector of claim 25 wherein:

the moveable element further comprises a spring section connected to the compressible section; and

said flow path further extends from the orifice, and into the spring section whereby the spring section provides a portion of the internal fluid passageway.

27. The connector of claim 26 wherein:

the spring section is extended when the moveable element is in the first position and when extended, the spring section has a first internal volume; and

the spring section is compressed when the moveable element is in the second position and when compressed, the spring section has a second internal volume, the second internal volume of the spring section being greater than the first internal volume of the spring section;

whereby the internal volume of the portion of the flow path provided by the spring section is greater when the spring section is compressed.

28. The connector of claim 18 wherein the housing includes a narrowed region adjacent the first port, the head of the movable element being located in the

narrowed region when the movable element is in the first position, the narrowed region being dimensioned so as to cause the bore of the head to close.

29. The connector of claim 18 wherein the housing includes a constricted region, the compressible section being located in the constricted region when the movable element is in the first position, the constricted region being dimensioned so as to cause the width of inner conduit of the compressible section to move to the first width.

30. The connector of claim 29 wherein:

the compressible section is connected to the head; and

the moveable element further comprises a spring section connected to the compressible section, the spring section being adapted to urge the movable element to the first position at which the compressible section is placed within the constricted region.

31. The connector of claim 30 wherein the head, and the compressible section, and the spring section are molded as an integral moveable element.

32. The connector of claim 18 wherein the compressible section comprises a plurality of flexible membrane elements and a plurality of relatively inflexible wall elements, the membrane elements connecting together adjacent edges of the wall elements.

33. The connector of claim 32 wherein the membrane elements are adapted to fold radially inwardly when the inner conduit has the first width.

34. A connector for controlling the flow of fluid, the connector having an internal fluid passageway by which fluid may flow through the connector, the connector comprising:

a housing having a first port and a second port, the first port being adapted to receive a blunt cannula and the second port adapted for fluid communication with a fluid conduit;

a movable element positioned within the housing, the movable element having a first position at which the movable element blocks fluid flow through the housing and a second position at which the movable element permits fluid flow through the housing, the movable element comprising:

a head defining a bore forming a part of the fluid passageway through the connector, the head being configured such that when the movable element is in the second position, the bore self-opens to permit fluid flow, the head being further configured such that when the moveable element is in the first position the bore moves to a closed configuration preventing fluid flow;

a compressible section defining an inner conduit forming a part of the fluid passageway through the connector, the inner conduit having a width moveable between a first width and a second width, the compressible section being configured so that when the moveable element is in the second position the compressible section self-expands so that the inner conduit has the second width, the inner conduit being further configured so that when the moveable element is in the first position the inner conduit moves to the first width, wherein the first width is smaller than the second width, the inner conduit being configured such that fluid may continuously flow through the entire inner conduit when the movable element is located in the second position; and

a support tube having a first end and a second end with the second end being in fluid communication with the second port, the support tube having a lumen forming a part of the internal fluid passageway through the connector, the support tube having a wall that defines the lumen and a longitudinal slot formed through the wall and into communication with the

lumen whereby fluid may flow into and out of the lumen through the longitudinal slot;

wherein the lumen and slot of the support tube are located within the inner conduit of the compressible section when the movable element is in the second position whereby fluid may flow through the inner conduit of the compressible section, through the slot, through the lumen of the support tube, and through the second port of the housing.

35. The connector of claim 34 wherein:

the inner conduit of the compressible section has a first end and a second end; and

the movable element also comprises an orifice located at the second end of the inner conduit that provides a flow path between the inner conduit and a location of the fluid passageway that is outside of the inner conduit.

36. The connector of claim 35 wherein:

the lumen and slot of the support tube extend to a location outside the inner conduit of the compressible section when the movable element is at the second position; and

the orifice provides a flow path between the inner conduit and the slot and the lumen of the support tube at the location outside of the inner conduit.

37. The connector of claim 36 wherein:

the moveable element further comprises a spring section connected to the compressible section, the spring section located over the lumen and slot of the support tube that extend to the location outside the inner conduit; and

the orifice provides the flow path through the spring section.

38. The connector of claim 37 wherein:

the spring section is extended when the moveable element is in the first position and when extended, the spring section has a first internal volume; and

the spring section is compressed when the moveable element is in the second position and when compressed, the spring section has a second internal volume, the second internal volume of the spring section being greater than the first internal volume of the spring section;

whereby the internal volume of the portion of the flow path provided by the spring section is greater when the spring section is compressed.

39. The connector of claim 34 further comprising a narrowed region adjacent the first port of the housing at which the head of the movable element is located when the movable element is in the first position, the size of the narrowed region selected so as to cause the bore of the head to close to prevent fluid flow through the fluid passageway of the connector.

40. The connector of claim 34 further comprising a narrowed region adjacent the first port of the housing at which the compressible section is located when the movable element is in the first position, the size of the narrowed region selected so as to cause the inner conduit of the compressible section to move to its second width.

41. The connector of claim 40 wherein:

the compressible section is connected to the head; and

the moveable element further comprises a spring section connected to the compressible section, the spring section being adapted to urge the movable element to the first position at which the compressible section is placed within the narrowed region.

42. The connector of claim 41 wherein the head, and the compressible section, and the spring section are molded as an integral element from a resilient material.

43. The connector of claim 34 wherein the compressible section comprises a plurality of substantially inflexible wall elements and a plurality of substantially flexible membrane elements, the membrane elements connecting together adjacent edges of the wall elements.

44. The connector of claim 43 wherein the membrane elements are adapted to fold radially inwardly when the inner conduit has the second width.

45. A method for controlling the flow of fluid, the method comprising:

inserting a blunt cannula in a first port of a housing to establish fluid communication with the housing;

moving a movable element that is positioned within the housing from a first position to a second position, the movable element comprising a head with a bore that is closed to prevent fluid flow through the housing when the movable element is in the first position and is self-opening when the movable element is in the second position to permit fluid flow, a compressible section with an inner conduit, the inner conduit having a first width when the movable element is in the first position and self-expanding to a second width that is larger than the first width when the movable element is at the second position;

causing fluid to flow continuously through the entire inner conduit when the movable element is located at the second position;

retracting the blunt cannula from the first port of the housing;

moving the movable element from the second position to the first position during the step of retracting the blunt cannula; and

moving the inner conduit from the second width to the first width during the step of retracting.

46. The method of claim 45 wherein the step of moving the movable element comprises expanding the inner conduit to the second width at which the volume for fluid flow through the connector is larger than when the inner conduit is at its first width.

47. The method of claim 45 wherein the step of moving the movable element comprises expanding the inner conduit to the second width at which the volume for fluid flow through the connector is approximately the same as when the inner conduit is at its first width.

48. The method of claim 45 wherein:

the step of moving the movable element further comprises moving the inner conduit over a support tube having a lumen forming a part of the internal fluid passageway through the connector; and

the step of causing fluid to flow through the inner conduit comprises causing fluid to flow through the lumen of the support tube also.

49. The method of claim 45 further comprising urging the movable element to the first position so that the bore is closed and the inner conduit has the first width during the step of retracting the blunt cannula from the first port of the housing.